FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

7 to 20 September, 2014 (weeks 37 & 38)

Overall Summary

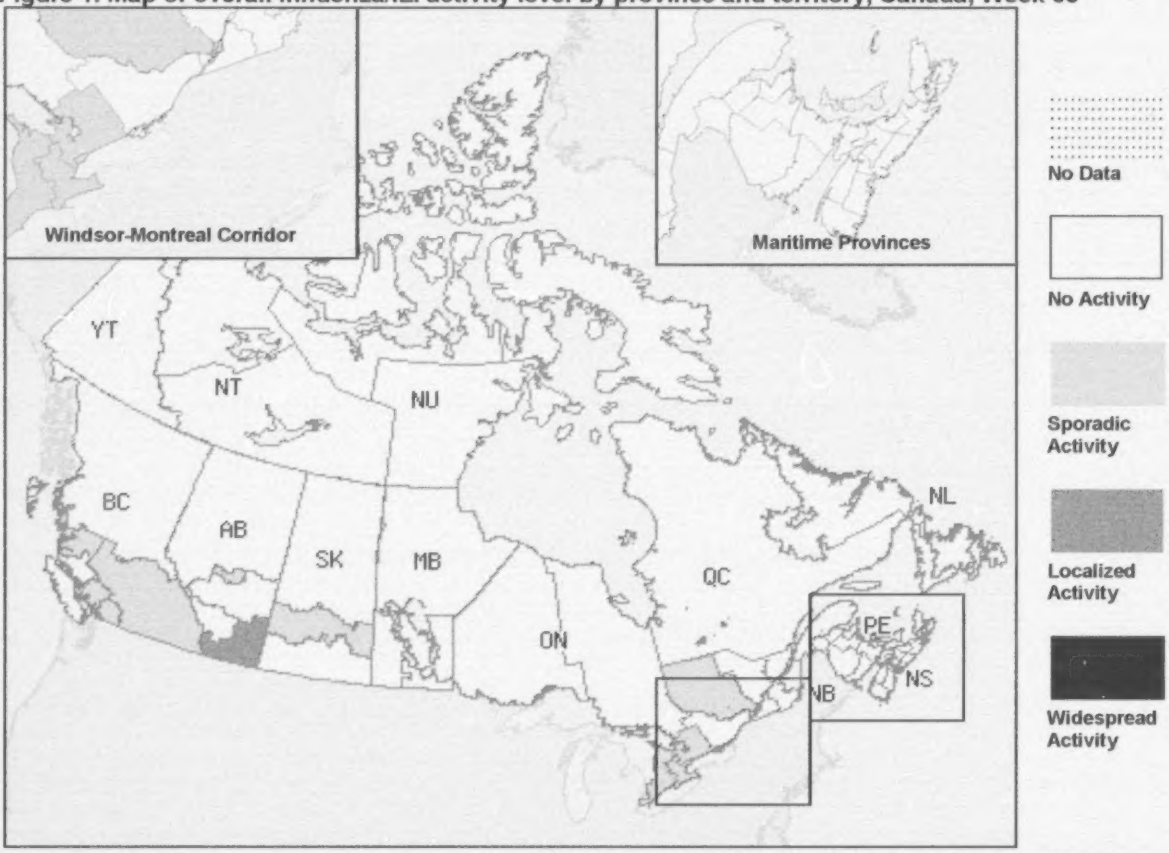
- Several influenza indicators (activity levels, influenza detections, ILI and hospitalizations) increased in weeks 37 and 38 compared to recent weeks.
- Influenza A(H3N2) was the predominant circulating virus with some co-circulation of influenza B.
- In week 38, one influenza outbreak and three ILI outbreaks were reported.
- During these two weeks, both paediatric and adult hospitalizations with influenza were reported.

Are you a primary health care practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel for the 2014-15 influenza season?
Contact us at FluWatch@phac-aspc.gc.ca

Influenza/ILI Activity (geographic spread)

In weeks 37 and 38, the number of regions in Canada reporting influenza/ILI activity increased. In week 37, six regions (BC(2), ON(1) and QC(3)) reported sporadic activity. In week 38, one region in Alberta reported localized activity, and 11 regions (BC(3), AB(1), SK (1), ON(4) and QC(2)) reported sporadic activity (Figure 1). In week 37, ten regions did not report data, and in week 38, one region did not report.

Figure 1. Map of overall influenza/ILI activity level by province and territory, Canada, Week 38

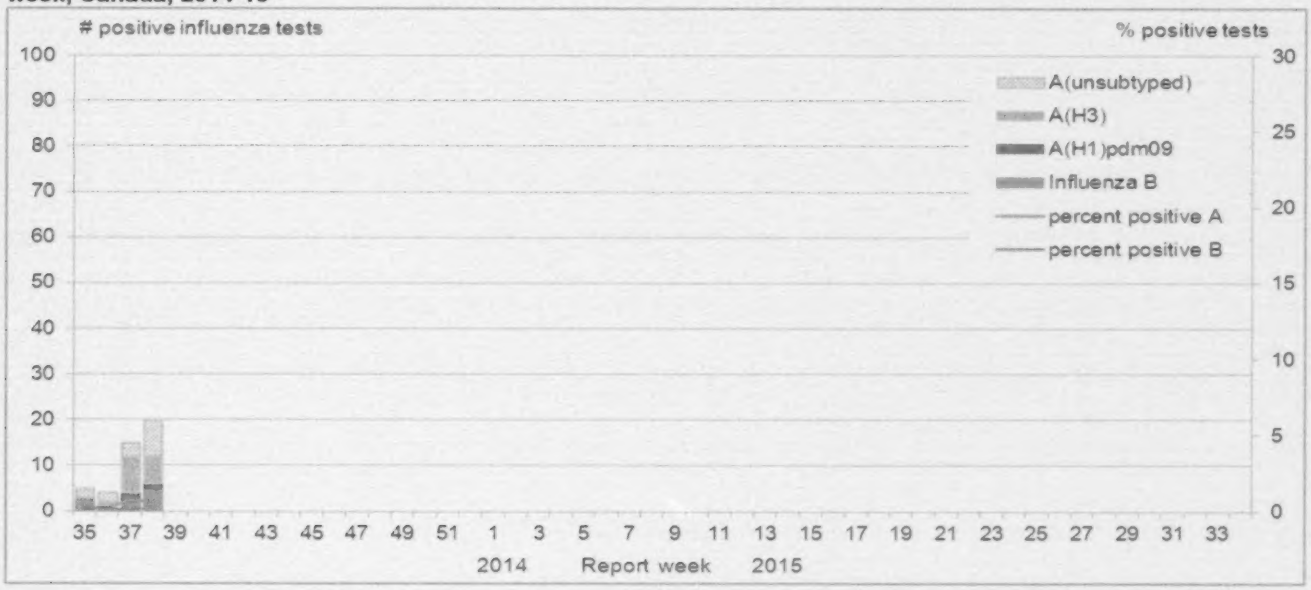


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available on the FluWatch website.

Influenza and Other Respiratory Virus Detections

Although the number of positive influenza tests increased over the two week period, the percent positive for influenza detections remains low (<1%) (Figure 2). To date, 75% of influenza detections have been influenza A, and the majority of those subtyped have been A(H3) (Table 1). Among cases with reported age, the largest proportion was in those ≥65 years of age (42%) (Table 2).

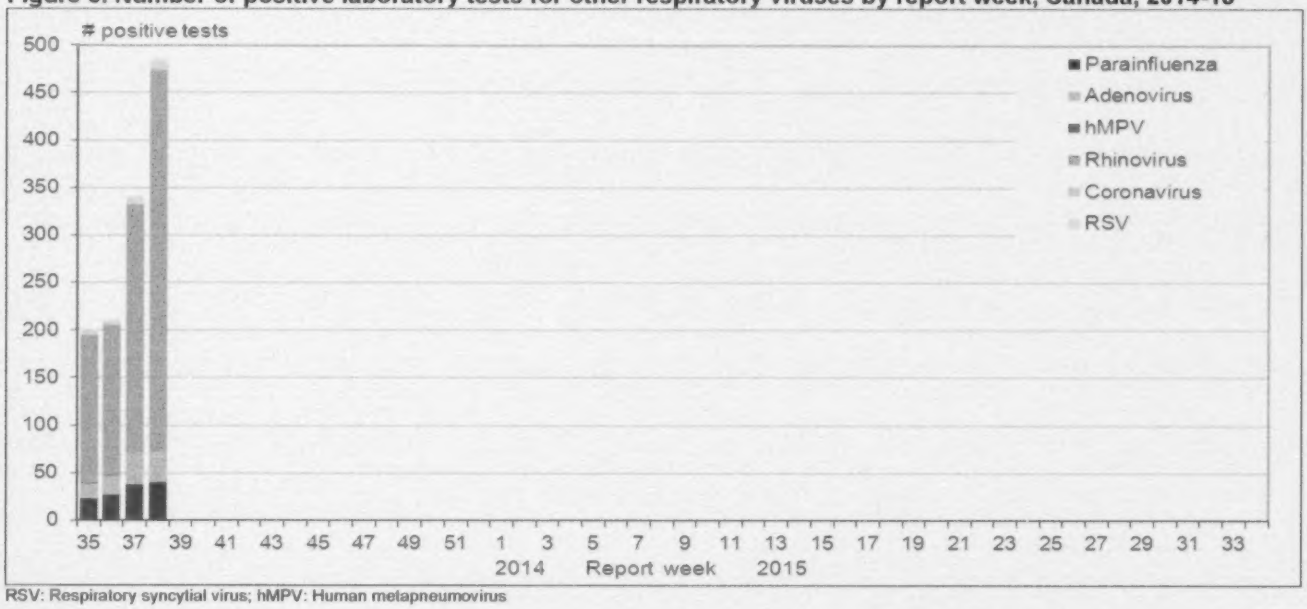
Figure 2. Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2014-15



In weeks 37 and 38, detections of other respiratory viruses were at inter-seasonal levels (RSV, coronavirus, and human metapneumovirus). Detections of parainfluenza and adenovirus were in keeping with their usual pattern of seasonal circulation. Detections of rhinovirus have increased 1-2 weeks earlier than seen in recent seasons, but are still in keeping with the usual pattern of seasonal circulation (Figure 3).

For more details, see the weekly Respiratory Virus Detections in Canada Report.

Figure 3. Number of positive laboratory tests for other respiratory viruses by report week, Canada, 2014-15



RSV: Respiratory syncytial virus; hMPV: Human metapneumovirus

Table 1. Weekly and cumulative numbers of positive influenza specimens by type, subtype and province, Canada, 2014-15

Reporting provinces[1]	Two weeks (September 7 to 20, 2014)					Cumulative (August 24 to September 20, 2014)				
	Influenza A				B	Influenza A				B
	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total
BC	8	3	4	1	1	8	3	4	1	1
AB	11	0	8	3	2	11	0	8	3	2
SK	1	0	0	1	0	1	0	0	1	0
MB	0	0	0	0	0	0	0	0	0	0
ON	3	0	2	1	1	5	0	3	2	2
QC	4	0	0	4	3	7	0	0	7	6
NB	0	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	0	0
PE	1	0	0	1	0	1	0	0	1	0
NL	0	0	0	0	0	0	0	0	0	0
Canada	**28**	**3**	**14**	**11**	**7**	**33**	**3**	**15**	**15**	**11**
Percentage[2]	80.0%	10.7%	50.0%	39.3%	20.0%	75.0%	9.1%	45.5%	45.5%	25.0%

Table 2. Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[3], Canada, 2014-15

Age groups (years)	Two weeks (September 7 to 20, 2014)					Cumulative (August 24 to September 20, 2014)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	#	%
<5	3	1	0	2	2	3	1	0	2	5	8	15.4%
5-19	4	0	3	1	1	5	0	3	2	1	6	11.5%
20-44	2	0	0	2	0	6	0	0	6	0	6	11.5%
45-64	5	0	1	4	2	5	0	1	4	5	10	19.2%
65+	11	1	5	5	2	20	1	7	12	2	22	42.3%
Unknown	0	0	0	0	0	0	0	0	0	0	0	0.0%
Total	25	2	9	14	7	39	2	11	26	13	52	100.0%
Percentage[2]	78.1%	8.0%	36.0%	56.0%	21.9%	75.0%	5.1%	28.2%	66.7%	25.0%		

[1] Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Cumulative data includes updates to previous weeks.
[2] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3] Table 2 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Influenza Strain Characterizations

The National Microbiology Laboratory (NML) has not yet reported any influenza strain characterizations for the 2014-15 season (Figure 4).

Data not yet available for the 2014-15 season.

Figure 4. Influenza strain characterizations, Canada, 2014-15, N = 0

The NML receives a proportion of the number of influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Characterization data reflect the results of haemagglutination inhibition (HAI) testing compared to the reference influenza strains recommended by WHO.

The recommended components for the 2014-2015 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009(H1N1)pdm09-like virus, an A/Texas/50/2012 (H3N2)-like virus, and a B/Massachusetts/2/2012-like virus (Yamagata lineage). For quadrivalent vaccines, the addition of a B/Brisbane/60/2008-like virus is recommended.

Antiviral Resistance

The NML has not yet reported antiviral resistance results for influenza viruses collected during the 2014-15 season (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2014-15

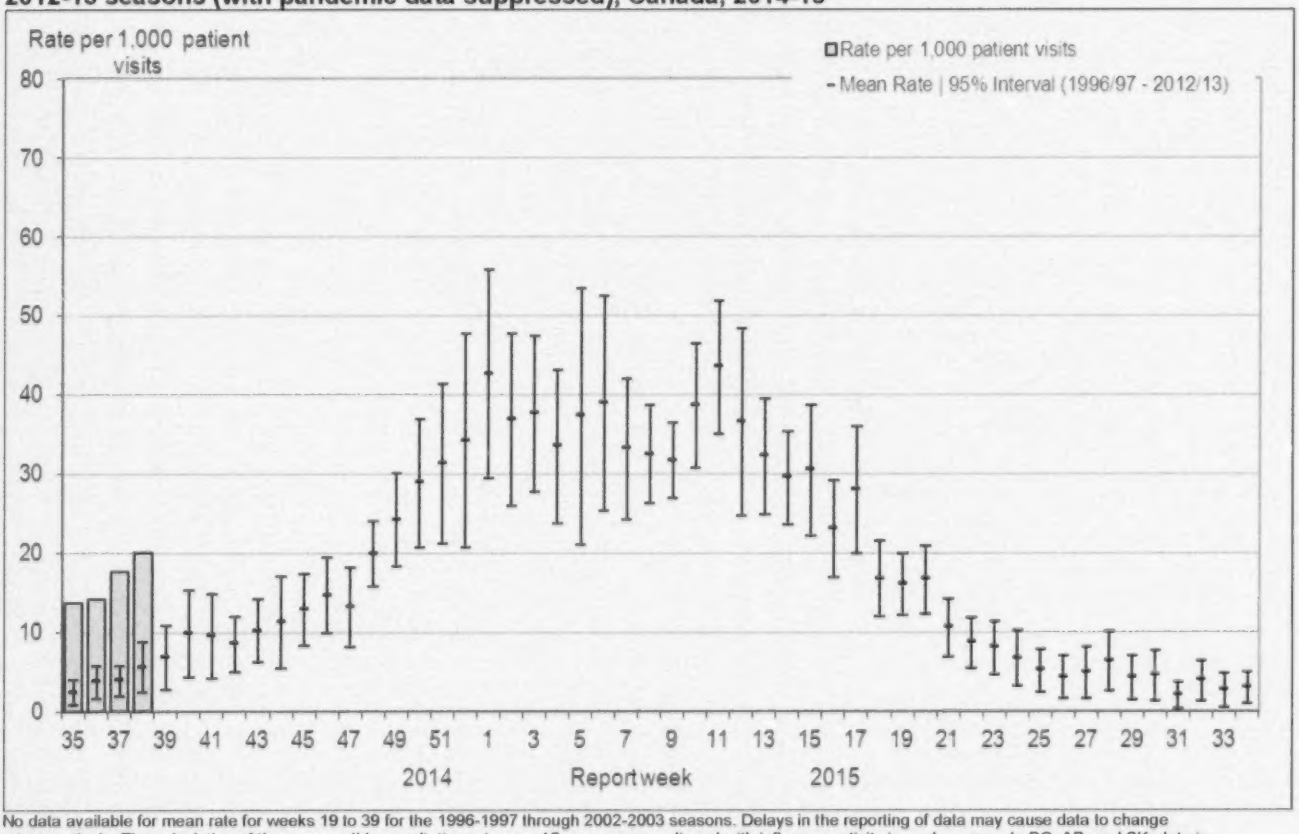
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	0	0	0	0	0	0
A (H1N1)	0	0	0	0	0	0
B	0	0	0	0	NA[1]	NA[1]
TOTAL	0	0	0	0	0	0

[1] NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate has been increasing steadily during the first four weeks of the 2014-15 season; and was 17.7 and 20.1 per 1,000 in weeks 37 and 38, respectively (Figure 5). The rates since mid-June have been above the expected range for this time of year.

Figure 5. Influenza-like-illness (ILI) consultation rates by report week, compared to the 1996-97 through to 2012-13 seasons (with pandemic data suppressed), Canada, 2014-15

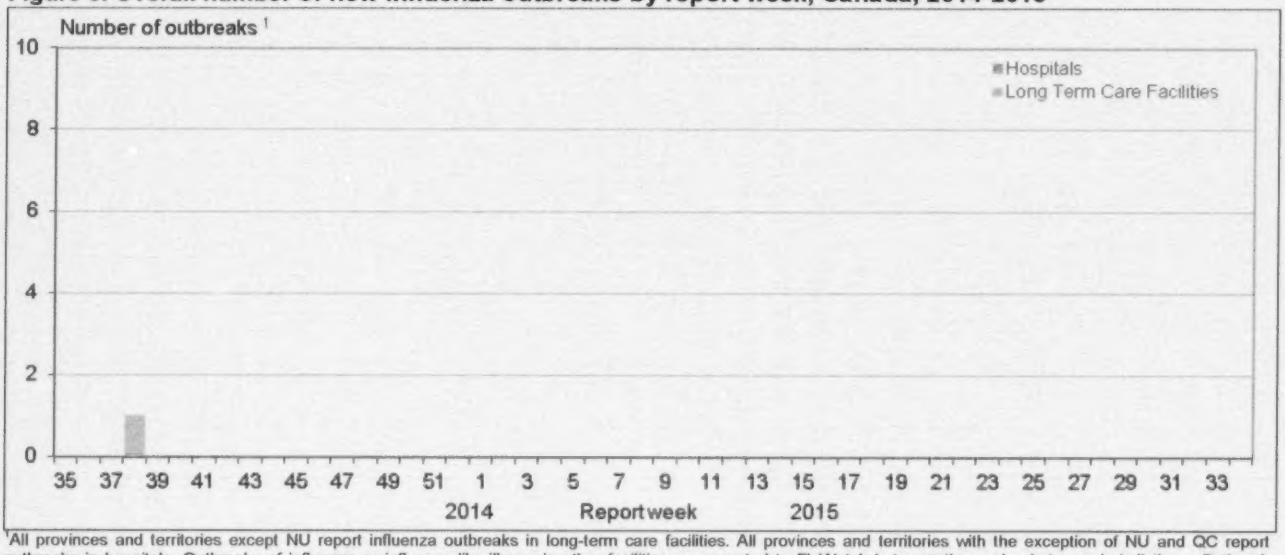


No data available for mean rate for weeks 19 to 39 for the 1996-1997 through 2002-2003 seasons. Delays in the reporting of data may cause data to change retrospectively. The calculation of the average ILI consultation rate over 17 seasons was aligned with influenza activity in each season. In BC, AB, and SK, data is compiled by a provincial sentinel surveillance program for reporting to FluWatch. The number of sentinel physicians in each province or territory is as follows: BC(21), AB(80), SK(11), MB(18), ON(169), QC(14), NB(29), NS(26), PE(4), NL(16), NU(1), NT(14), YT(13). Not all sentinel physicians report every week.

Influenza Outbreak Surveillance

One new outbreak of influenza was reported in a long-term care facility in week 38 (Figure 6). Three outbreaks of influenza-like illness in schools were also reported in the same week.

Figure 6. Overall number of new influenza outbreaks by report week, Canada, 2014-2015

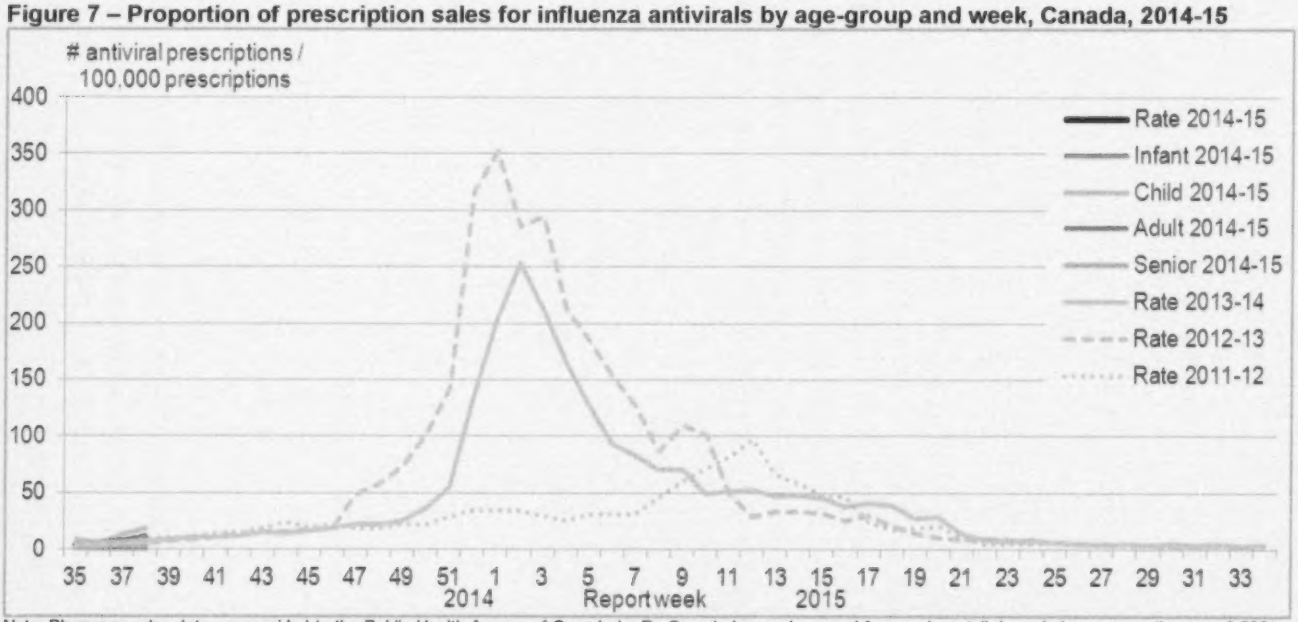


[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions. Outbreak definitions are included at the end of the report.

Pharmacy Surveillance

During this two-week period, the proportion of prescriptions for antivirals increased to 10.5 antiviral prescriptions per 100,000 total prescriptions in week 38 (Figure 7).

Figure 7 – Proportion of prescription sales for influenza antivirals by age-group and week, Canada, 2014-15



Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 2,500 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group. Age-groups: Infant: 0-2y, Child: 2-18y; Adult: 19-64y, Senior: ≥65y

Sentinel Hospital Influenza Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 37 and 38, four laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network (Figure 8a). These are the first hospitalizations reported through IMPACT this season. Three of the four were cases of influenza A and two were admitted to the ICU. The age distribution of cases ranged from <6 months to 16 years.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

Surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network has not yet begun for the 2014-15 season (Figure 8b).

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Table 4 – Cumulative numbers of paediatric hospitalizations with influenza reported by the IMPACT network, Canada, 2014-15

Age groups	Cumulative (24 Aug. 2014 to 20 Sep. 2014)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-5m						
6-23m						
2-4y						
5-9y						
10-16y						
Total						
% [1]						

Data suppressed for the 2014-15 season due to small values. Table 4 will be updated when additional data are received.

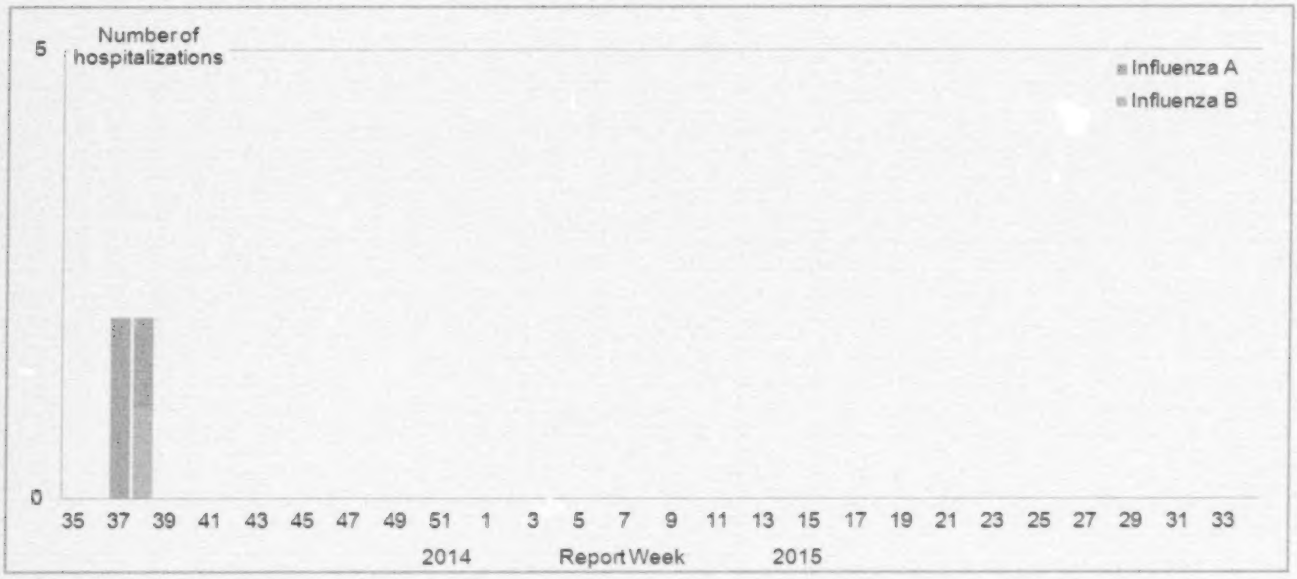
Table 5 – Cumulative numbers of adult hospitalizations with influenza reported by the PCIRN-SOS network, Canada, 2014-15

Age groups (years)	Cumulative (data for 2014-15 not yet available)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
16-20						
20-44						
45-64						
65+						
Total						
%						

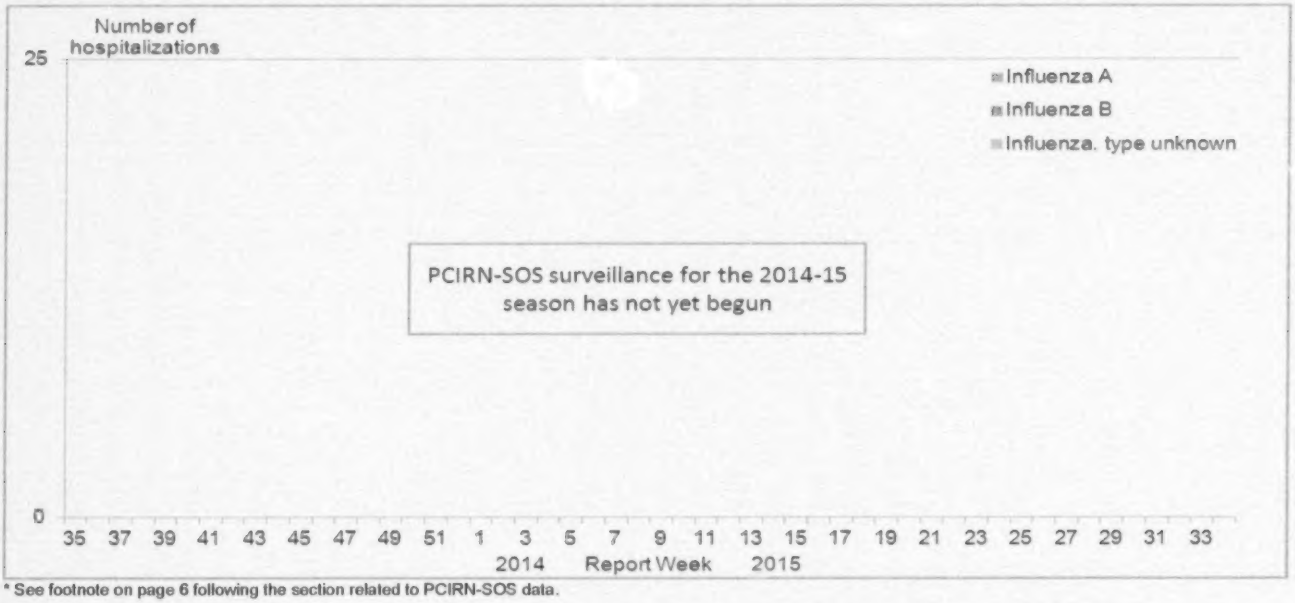
PCIRN-SOS surveillance for the 2014-15 season has not yet begun

[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections. UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Figure 8 – Number of cases of influenza reported by sentinel hospital networks, by week, Canada, 2014-15
A) Paediatric hospitalizations (≤16 years of age, IMPACT)



B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)


Number of hospitalizations
25
0
Influenza A
Influenza B
Influenza, type unknown
PCIRN-SOS surveillance for the 2014-15 season has not yet begun
35 37 39 41 43 45 47 49 51 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
2014
Report Week
2015

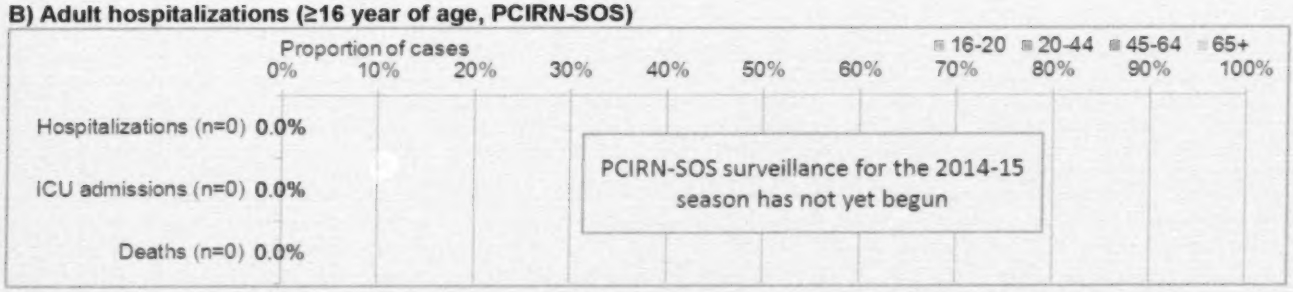
* See footnote on page 6 following the section related to PCIRN-SOS data.

Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada, 2014-15

A) Paediatric hospitalizations (≤16 years of age, IMPACT)

Data suppressed for the 2014-15 season due to small values.
Figure 9a will be updated when additional data are received.

B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)



Provincial/Territorial Influenza Hospitalizations and Deaths

Since the start of the 2014-15 season, four laboratory-confirmed influenza-associated hospitalizations have been reported from participating provinces and territories*; all with influenza A, and the majority were patients ≥65 years of age. No ICU admissions or deaths were reported.

* Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not distinguished among hospital admissions reported from Ontario. Data may also include cases reported by the IMPACT and PCIRN networks.

Table 6 – Cumulative number of hospitalizations with influenza reported by the participating provinces and territories, Canada, 2014-15

Age groups (years)	Cumulative (24 Aug. 2014 to 20 Sep. 2014)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-4						
5-19						
20-44						
45-64						
65+						
Unknown						
Total						
Percentage[1]						

Data suppressed for the 2014-15 season due to small values.
Table 6 will be updated when additional data are received.

[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

See additional data on Reported Influenza Hospitalizations and Deaths in Canada: 2009-10 to 2014-15 on the Public Health Agency of Canada website.

Emerging Respiratory Pathogens

Human Avian Influenza
Influenza A(H7N9): No new cases of human infection with influenza A(H7N9) have been reported by the World Health Organization since the last FluWatch report. Globally to September 25, 2014, the WHO has been informed of a total of 453 laboratory-confirmed human cases with avian influenza A(H7N9) virus, including 175 deaths.

Documents related to the public health risk of influenza A(H7N9), as well as guidance for health professionals and advice for the public is updated regularly on the following websites:
PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
Globally, from September 2012 to September 25, 2014, the WHO has been informed of a total of 846 laboratory-confirmed cases of infection with MERS-CoV, including 298 deaths. All cases have either occurred in the Middle East or have had direct links to a primary case infected in the Middle East. The public health risk posed by MERS-CoV in Canada remains low (see the PHAC Assessment of Public Health Risk).

Documents related to the public health risk of MERS-CoV, as well as guidance for health professionals and advice for the public is updated regularly on the following websites:
PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

Enterovirus D68 (EV-D68)
As of September 26, 2014, confirmed cases of EV-D68 have been reported in Western and Central Canada. The EV-D68 strains detected in Canada match those associated with clusters of cases reported in the United States in recent months. Fall is the peak season for enterovirus circulation in both Canada and the US.
Enterovirus D68: A Rapid Review for Canadian Public Health Practitioners
CDC – MMWR: Severe Respiratory Illness Associated with Enterovirus D68 — Missouri and Illinois, 2014 (12 Sep 2014)

International Influenza Reports

World Health Organization influenza update

World Health Organization FluNet

WHO Influenza at the human-animal interface

Centers for Disease Control and Prevention seasonal influenza report

European Centre for Disease Prevention and Control - epidemiological data

South Africa Influenza surveillance report

New Zealand Public Health Surveillance

Australia Influenza Report

Pan-American Health Organization Influenza Situation Report

FluWatch Definitions for the 2014-2015 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = **No activity:** no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = **Sporadic:** sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = **Localized:** (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = **Widespread:** (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html.

Ce rapport est disponible dans les deux langues officielles.